

(D.V.)

WHAT IS CLAIMED IS:

1. A prefilled tamper evident syringe barrel comprising:

a) a syringe barrel of glass or polymeric material having an inner surface
5 defining a chamber having a medical fluid therein, said syringe barrel comprising:

1) a distal end terminating in a shoulder portion and a tapered tip; and

2) a proximal end containing a plunger slideably positioned in the syringe
barrel;

wherein said tapered tip comprises: a distal end and a proximal end, said distal
10 end being closed by a tip seal; wherein said tapered tip has a breakaway score means
adjacent to said distal end for facilitating removal of said tip seal thereby forming a
passageway through which said medical fluid can be expelled from the syringe barrel;

b) a tamper evident tip cap of cylindrical configuration having a closed distal
end and an open proximal end wherein said open proximal end has a slot therein, said
15 open proximal end is frangibly being sealed to the proximal end of said tapered tip to
facilitate the removal of said tamper evident tip cap;

c) an overwrap of cylindrical configuration having a closed distal end and an
open proximal end, said overwrap being provided with a ridge adjacent to the proximal
end thereof projecting towards the shoulder of the syringe barrel and resting thereon;
20 wherein said overwrap encloses a portion of said syringe barrel, said shoulder portion and
said tip cap; and

d) a tamper evident seal of cylindrical configuration having an open distal end
and an open proximal end provided with a frangible score line, which seals said proximal
end of said overwrap to the said syringe barrel;

25 wherein said frangible score line facilitates the removal of said overwrap from said
syringe barrel.

2. The prefilled tamper evident syringe barrel of claim 1 wherein said tip seal is
surrounded by a luer collar positioned adjacent to said breakaway score means adapted to
30 receive an external luer connector.

3. The prefilled tamper evident syringe barrel of claim 1 wherein said overwrap is a monolayer film.
4. The prefilled tamper evident syringe barrel of claim 3 wherein said monolayer film is polycyclohexanedimethylcyclohexane dicarboxylate.
5. The prefilled tamper evident syringe barrel of claim 1 wherein said overwrap is a polyvinylchloride layer between two polyethylene layers.
- 10 6. The prefilled tamper evident syringe barrel of claim 1 wherein said overwrap is a polyvinylchloride layer between two polyvinyl acetate layers.
7. The prefilled tamper evident syringe barrel of claim 1 wherein said overwrap is a polyethylene layer between polyester outer layers sealed together by a propylene copolymer.
- 15 8. The prefilled tamper evident syringe barrel of claim 1 wherein said tamper evident tip cap is made of a polymeric material selected from the group consisting of polyethylene, polypropylene, polystyrene, polycarbonate, polymethylpentene, cyclic olefin polymers, acrylic polymers and methacrylic polymers.
- 20 9. The prefilled tamper evident syringe barrel of claim 1 wherein said tamper evident syringe barrel is coated with a UV barrier coating.
- 25 10. A prefilled tamper evident syringe barrel comprising:
- a) a syringe barrel of glass or polymeric material having an inner surface defining a chamber having a medical fluid therein, said syringe barrel comprising:
- 1) a distal end terminating in a shoulder portion and a tapered tip; and
- 2) a proximal end containing a plunger slideably positioned in the syringe
- 30 barrel;
- fig 6

wherein said tapered tip comprises: a distal end and a proximal end, said distal end being closed by a tip seal; wherein said tapered tip has a breakaway score means adjacent to said distal end for facilitating removal of said tip seal thereby forming a passageway through which said medical fluid can be expelled from the syringe barrel;

5 b) a tamper evident tip cap of cylindrical configuration having a closed distal end and an open proximal end comprising: (1) an upper part and (2) a lower part, said upper part and said lower part connected to each other by a breakaway score line; a centrally positioned cylinder in said upper part extending from said closed distal end towards said proximal end of the tamper evident tip cap terminating in said breakaway score line and serving to securely hold said tip seal; said lower part of said tamper evident tip cap being sealed at its proximal end to the distal end of said syringe barrel, said lower part comprising an anti-rotation lock connecting said lower part to said syringe barrel;

10 c) an overwrap of cylindrical configuration having a closed distal end and an open proximal end, said overwrap being provided with a ridge adjacent to the proximal end thereof projecting towards the shoulder of said syringe barrel and resting thereon; wherein said overwrap encloses a portion of said syringe barrel, said shoulder portion and said tip cap; and

15 d) a tamper evident seal of cylindrical configuration having an open distal end and an open proximal end, provided with a frangible score line, which seals said proximal end of said overwrap to the said syringe barrel;

20 wherein said frangible score line facilitates the removal of said overwrap from said syringe barrel.

11. The prefilled tamper evident syringe barrel of claim 10 wherein said tip seal is
25 surrounded by a luer collar positioned adjacent to said breakaway score means adapted to receive an external luer connector.

12. The prefilled tamper evident syringe barrel of claim 10 wherein said overwrap is a monolayer film.

13. The prefilled tamper evident syringe barrel of claim 12 wherein said monolayer film is polycyclohexanedimethylcyclohexane dicarboxylate.
14. The prefilled tamper evident syringe barrel of claim 10 wherein said overwrap is a
5 polyvinylchloride layer between two polyethylene layers.
15. The prefilled tamper evident syringe barrel of claim 10 wherein said overwrap is a polyvinylchloride layer between two polyvinyl acetate layers.
- 10 16. The prefilled tamper evident syringe barrel of claim 10 wherein said overwrap is a polyethylene layer between polyester outer layers sealed together by a propylene copolymer.
17. The prefilled tamper evident syringe barrel of claim 10 wherein said tamper
15 evident tip cap is made of a polymeric material selected from the group consisting of polyethylene, polypropylene, polystyrene, polycarbonate, polymethylpentene, cyclic olefin polymers, acrylic polymers and methacrylic polymers.
18. The prefilled tamper evident syringe barrel of claim 10 wherein said tamper
20 evident syringe barrel is coated with a UV barrier coating.
19. A prefilled tamper evident syringe barrel comprising:
- a) a syringe barrel of glass or polymeric material having an inner surface defining a chamber having a medical fluid therein, said syringe barrel comprising:
- 25 1) a distal end comprising: a tapered shoulder, a neck portion and an open tip portion; and
- 2) a cylindrical luer collar having internal spiral threads therein positioned around said open tip portion adapted to receive an external access means equipped with a luer connector;
- 30 b) an elastomeric plug closing said open tip portion within said luer collar;

c) a tip cap of cylindrical configuration having a widened top portion to facilitate the removal thereof, and a bottom portion enclosing said elastomeric plug, said luer collar and a part of said neck portion of said syringe barrel;

5 wherein said tip cap is sealed to the neck portion by an adhesive or thermoplastic means;

d) an overwrap of cylindrical configuration having a closed distal end and an open proximal end, said overwrap being provided with a ridge adjacent to the proximal end thereof projecting towards the shoulder of said syringe barrel and resting thereon; wherein said overwrap encloses a portion of said syringe barrel, said shoulder portion and
10 said tip cap; and

e) a tamper evident seal of cylindrical configuration having an open distal end and an open proximal end provided with a frangible score line, which seals said proximal end of said overwrap to the said syringe barrel; wherein said frangible score line facilitates the removal of said overwrap from said
15 syringe barrel.

20. The prefilled tamper evident syringe barrel of claim 19 wherein said open tip portion is surrounded by a luer collar adapted to receive an external luer connector.

20 21. The prefilled tamper evident syringe barrel of claim 19 wherein said overwrap is a monolayer film.

22. The prefilled tamper evident syringe barrel of claim 21 wherein said monolayer film is polycyclohexanedimethylcyclohexane dicarboxylate.

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23. The prefilled tamper evident syringe barrel of claim 19 wherein said overwrap is a polyvinylchloride layer between two polyethylene layers.

24. The prefilled tamper evident syringe barrel of claim 19 wherein said overwrap is a
30 polyvinylchloride layer between two polyvinyl acetate layers.

25. The prefilled tamper evident syringe barrel of claim 19 wherein said overwrap is a polyethylene layer between polyester outer layers sealed together by a propylene copolymer.

5 26. The prefilled tamper evident syringe barrel of claim 19 wherein said tamper evident tip cap is made of a polymeric material selected from the group consisting of polyethylene, polypropylene, polystyrene, polycarbonate, polymethylpentene, cyclic olefin polymers, acrylic polymers and methacrylic polymers.

10 27. The prefilled tamper evident syringe barrel of claim 19 wherein said tamper evident syringe barrel is coated with a UV barrier coating.

28. A prefilled tamper evident syringe barrel comprising:

15 a) a syringe barrel of glass or polymeric material having an inner surface defining a chamber having a medical fluid therein, said syringe barrel comprising:

1) a distal end comprising: a tapered shoulder, a neck portion and an open tip portion;

b) an elastomeric plug closing said open tip portion;

20 c) a tip cap of cylindrical configuration having a widened top portion to facilitate the removal thereof, and a bottom portion enclosing said elastomeric plug, and a part of said neck portion of said syringe barrel;

wherein said tip cap is sealed to the neck portion by an adhesive or thermoplastic means;

25 d) an overwrap of cylindrical configuration having a closed distal end and an open proximal end, said overwrap being provided with a ridge adjacent to the proximal end thereof projecting towards the shoulder of said syringe barrel and resting thereon; wherein said overwrap encloses a portion of said syringe barrel, said shoulder portion and said tip cap; and

30 e) a tamper evident seal of cylindrical configuration having an open distal end and an open proximal end provided with a frangible score line, which seals said proximal end of said overwrap to the said syringe barrel;

wherein said frangible score line facilitates the removal of said overwrap from said syringe barrel.

29. The prefilled tamper evident syringe barrel of claim 28 wherein said tamper
5 evident syringe barrel is coated with a UV barrier coating.